

Remarks

In the Office Action mailed on January 31, 2001, the Examiner objected to certain informalities in the disclosure, suggested that FIGS. 15 and 16 be labeled "PRIOR ART", objected to the use of encircled reference numerals in the drawings, objected to the use of the same reference numerals to designate different parts of the device, and suggested that the drawings fail to show every feature of the invention specified in the claims. The Examiner also objected to the order of certain dependent claims and referred to MPEP § 608.01(n), which states that claims depending from a dependent claim should not be separated from the dependent claim by any claim which does not also depend from the dependent claim. The Examiner also rejected claims 1-16 and 21 under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, the Examiner suggested that the term "generally" used in claim 1 is a relative term; stated that the phrase "the form" as used in claim 1 lacks sufficient antecedent basis; stated that the phrase "said connector housing top wall portions" as used in claim 5 lacks sufficient antecedent basis; stated that the phrase "said outer shell member" as used in claim 20 lacks sufficient antecedent basis; and stated that the phrase "said space" as used in claim 21 lacks sufficient antecedent basis. The Examiner also rejected claims 1-14 and 21 under 35 U.S.C. §103(a) as being unpatentable over Wu et al., U.S. Patent No. 6,086,421 in view of Futatsugi et al., U.S. Patent No. 6,077,120; rejected claims 17, 18 and 20 under 35 U.S.C. §103(a) as being unpatentable over Futatsugi et al. '120 in view of Matsunuma et al., U.S. Patent No. 5,993,258; and rejected claim 19 under 35 U.S.C. §103(a) as being unpatentable over Futatsugi et al. '120 and of Matsunuma et al. '258, and further in view of Wu et al. '421. The Examiner also provisionally rejected claims 1-21 under the doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of co-pending application 09/660,907 in view of Futatsugi et al. '120.

In response to the Examiner's objections to the drawings, encircled reference numerals 1-6 appearing within the outline of metal blank 20A have been deleted and the corresponding elements designated by the encircled numerals have been re-numbered. Also, FIGS. 15 and 16 have been labeled "PRIOR ART".

In response to the Examiner's objection regarding the ordering of the dependent claims, MPEP § 608.01(n)(IV) states:

A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim. A claim which depends from a dependent claim should not be separated therefrom by any claim which does not also depend from said "dependent claim." *It should be kept in mind that a dependent claim may refer back to any preceding independent claim.* (Emphasis added)

Thus, the Applicants respectfully submit that the ordering of the dependent claims is permissible as filed.

In response to the Examiner's suggestion that the term "generally" used in claim 1 is a relative term, the Applicants respectfully submit that the meaning of the term "generally" would be clear to one of ordinary skill in the art, within the context of claim 1. Thus, the usage of the term "generally" in claim 1 is appropriate.

Claims 1, 5, 20 and 21 have been amended to address the Examiner's rejections under 35 U.S.C. §112, second paragraph with regard to antecedent basis. In addition, claim 17 has been amended to recite "...*distinct top and bottom wall portions defining an interior receptacle...*" in which the terminals are supported, and also a connector housing "...*not having any sidewalls interconnecting the top and bottom wall portions together*".

With regard to the claim rejections under 35 U.S.C. §103(a), the Applicants respectfully submit that the combination of references suggested by the Examiner fails to establish a case of prima facie obviousness for claims 1 or 21 because there is no suggestion, either express or implied, in the references that they be combined in a manner required to meet these claims.

In addition, the Applicants respectfully submit that the combination of references suggested by the Examiner fails to establish a case of prima facie obviousness for claims 1 or 21 because at least one of the references would need to be modified to meet these claims, and there is no suggestion, either express or implied, in either reference that the reference be modified in such a manner.

Claim 1 recites a "...connector housing having a body portion and distinct top and bottom wall portions extending therefrom, the connector housing top and bottom portions being disposed on said body portion to define a space therebetween adapted to receive said opposing connector insertion portion therein, ...said connector *housing not having any sidewalls interconnecting said top and bottom wall portions together* such that said connector housing has a generally U-shaped cross-section;...". Similarly, claim 21 recites a "...connector housing having a body portion and distinct top and bottom wall portions extending therefrom, the connector housing top and bottom portions defining a receptacle therebetween adapted to receive said opposing connector insertion portion therein, *said connector housing not having any sidewalls interconnecting said top and bottom wall portions and defining part of said receptacle;...*".

In contrast, Wu et al. '421 discloses a housing 1 having a top side 15, a bottom side 17 and side walls 16, 18 connecting top side 15 and bottom side 17. Similarly, Futatsugi et al. '120 shows an insulating housing 20 having a top side, a bottom side and sidewalls connecting the top and bottom sides. Thus, the housings shown in Wu et al. '421 and Futatsugi et al. '120 both have sidewalls, and there is no suggestion in either reference that the housing described therein be modified to provide a "...connector housing not having any sidewalls interconnecting said top and bottom wall portions together such that said connector housing has a generally U-shaped cross-section;...", as recited in claim 1. Similarly, there is no suggestion in either reference that the housing described therein be modified to provide a "...connector housing not having any sidewalls interconnecting said top and bottom wall portions and defining part of said receptacle;...", as recited in claim 21.

The Applicants also respectfully submit that claims 1 and 21 are unobvious in view of the combination of references suggested by the Examiner because, as the housings described in Wu et al. '421 and Futatsugi et al. '120 have sidewalls, these references teach away from a "...connector housing not having any sidewalls interconnecting said top and bottom wall portions together such that said connector

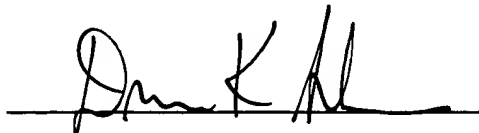
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housing has a generally U-shaped cross-section;...", as recited in claim 1. Similarly, the cited references teach away from and a "...connector housing not having any sidewalls interconnecting said top and bottom wall portions and defining part of said receptacle;...", as recited in claim 21.

For the reasons stated above, the Applicants respectfully submit that the combination of Wu et al. '421 and Futatsugi et al. '120 suggested by the Examiner fails to establish a case of prima facie obviousness for claims 1 or 21; therefore, the rejection of claims 1 and 21 should be withdrawn. As claim 1 is believed to be patentable over the cited references, it is submitted that claims 2-16 are also patentable as they depend from claim 1. Also, it is submitted that claim 17, as amended, is patentable. As claim 17 is believed to be patentable over the cited references, it is submitted that claims 18-20 are also patentable as they depend from claim 17.

With respect to the provisional obviousness-type double patenting rejection, the Applicants respectfully submit that, as the rejection is provisional, Applicants will submit a terminal disclaimer to obviate the rejection upon the indication of allowable subject matter in one or the other of the two applications.

In view of the above amendments and remarks, the Applicants respectfully submit that all rejections of record have been overcome. The Applicants respectfully request favorable reconsideration and allowance of the present application.

Respectfully submitted,



Dennis K. Scheer
Attorney for Applicants
Reg. No. 39356

Dated: APRIL 30, 2001

WILDMAN, HARROLD, ALLEN & DIXON
225 West Wacker Drive
Chicago, Illinois 60606-1229

Version With Markings To Show Changes Made (Claims)

-- 1. (Amended) A connector for providing a connection between an opposing connector and a circuit board, the opposing connector having an elongated insertion end for mating with the connector, said connector comprising: an insulative housing supporting a plurality of conductive terminals, the terminals each having contact portions and tail portions, the tail portions extending outwardly and away from the connector housing, the connector housing having a body portion and distinct top and bottom wall portions extending therefrom, the connector housing top and bottom portions being disposed on said body portion to define a space therebetween adapted to receive said opposing connector insertion portion therein, the contact portions of said terminals being disposed in said space and between said top and bottom wall portions, said connector housing not having any sidewalls interconnecting said top and bottom wall portions together such that said connector housing has a generally U-shaped cross-section;

a retainer [in the form of] comprising a metal shield that overlies a portion of said connector housing, the retainer shield having three distinct retention members formed thereon, each of the retention members extending at least partially into said space between said connector housing top and bottom wall portions for engaging opposing portions of said opposing connector inserted into said space, each of said retention members further extending into said space from three different directions; and

an outer metal shell having a plurality of different panel portions, some of which overlie portions of said connector housing, the shell member having a front face panel that extends vertically between said connector housing top and bottom wall portions, two side panels that extend vertically between said connector housing top and bottom wall portions and close off said space therebetween to define a four sided receptacle of said connector, the front face panel having an opening formed therein that communicates with said receptacle, two of said retention members being disposed interiorly of said side panels and the third of said retention members being disposed interiorly of said connector housing top wall portion.

5. (Amended) The connector as set forth in claim 4, wherein said shell includes a top panel portion integrally formed with said front panel portion, said top panel portion overlying part of said retainer shield and said connector housing top wall [member] portion, said shell side panel portions being integrally formed with said panel front portion, said top and side panel portions being folded along side edges of said connector housing top wall portion[s].

17. (Amended) A receptacle connector for providing electrical connection between an opposing plug connector with a circuit board, the opposing connector having an insertion end for mating with the receptacle of said connector, comprising:

an insulative housing, the connector housing supporting a plurality of conductive terminals, the connector housing having distinct top and bottom wall portions defining an interior receptacle in which said terminals are supported, the receptacle being sized to receive said plug connector insertion end when said plug connector is mated to said receptacle connector, the housing not having any sidewalls interconnecting the top and bottom wall portions together;

a retainer shield for shielding a portion of said connector housing and for engaging a plurality of exterior surfaces of said plug connector insertion end, the retainer shield including a body portion that is bent to overlie at least three distinct sides of said connector housing, said retainer shield further including at least two retention members formed therewith and projecting into said connector housing interior receptacle, said two retention members being oriented in distinct vertical and horizontal planes so as to exert a retaining force from two different directions on two different surfaces of said plug connector insertion end when inserted into said receptacle.

20. (Amended) The connector of claim [18] 19, wherein said outer shell member overlies a portion of said retainer shield and at least partially retains said retainer shield in place on said connector housing.

21. (Amended) A connector for providing a connection between an opposing connector and a circuit board, the opposing connector having an elongated insertion end for mating with the connector, said connector comprising:

an insulative housing supporting a plurality of conductive terminals, the connector housing having a body portion with distinct top and bottom wall portions extending therefrom, the connector housing top and bottom portions defining a receptacle therebetween adapted to receive said opposing connector insertion portion therein, said connector housing not having any sidewalls interconnecting said top and bottom wall portions and defining part of said receptacle;

a retainer shield that overlies a portion of said connector housing, the retainer shield being formed from metal blank and having three distinct retention members formed therewith, each of the retention members extending at least partially into said receptacle for engaging an opposing portion of said opposing connector inserted into said [space] receptacle, each of said retention members further extending into said [space] receptacle from three different directions; and,

an outer metal shell having a plurality of different panel portions disposed on some portions of said connector housing in overlying relationship, the shell member having a front face panel that extends vertically between said connector housing top and bottom wall portions, two side panels that extend vertically between said connector top and bottom wall portions, said connector receptacle, the front face panel having an opening formed therein that communicates with said receptacle, two of said retention members being disposed interiorly of said outer shell side panels and the third of said retention members being disposed interiorly of said outer shell and said connector housing top wall portion. --

Version With Markings To Show Changes Made (Specification)

First paragraph starting on page 10 of the specification:

An improved shielded connector **R** constructed in accordance with the principles of the present invention is illustrated in FIGS. 1-14 and in the embodiment shown, a "DIP" (Dual-In-line Process) type electrical connector of USB (Universal Serial Bus) style is illustrated as an example of a connector to which the principles of the present invention may be applied. The connector shown is one that is intended to be mounted on a substrate, such as a circuit board (not shown). As illustrated in FIGS. 1-3, the shielded connector **R** is provided with an inner insulated housing for supporting one or more conductive terminals or contacts 1, and a metal shell 20 for overlying the outer surface of the connector housing to thereby shield the terminal 1. The metal shell 20 includes a front frame panel portion 22 that defines an opening 21 in the shell 20 and the connector **R**. this opening 21 receives a portion of an opposing plug connector **P**, such as the one shown in FIG. 16. The front frame portion 22 can be seen to entirely surround the opening 21.

Last paragraph starting on page 12 of the specification and continuing through to page 13:

The metal shell 20 is formed after it is stamped out of a suitable metal blank by bending it. The metal blank 20A is illustrated in plan view in FIG. 10. It can be seen to include a plurality of panels that are integrally attached to each other, such as a front surface shield panel, or portion 23 indicated at [①] 101, two side surface shield panels, or portions 24 on both sides of the front surface but spaced apart therefrom as indicated at [②] 102, a top surface shield panel, or portion 25 as indicated by [③] 103, a bottom surface shield portion 26 as indicated by [④] 104, two engagement pieces 27 as indicated by [⑤] 105, and fixing pieces 28 as indicated by [⑥] 106. All these panels, [and] portions and pieces form the part of the metal shell that overlies the outer surfaces of the connector housing 10. These overlying portions indicated by [① to ⑥] 101 to 106

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are formed by bending them along the broken lines in FIG. 10. Thus, it will be understood that the metal shell 20 has what may be considered an overlapped structure where at least one portion overlies each of five of the six surfaces of the connector housing 10. Therefore the metal shell 20 has at least one portion[s] that overlies each of these five surfaces of the connector housing that are all formed by way of bending or forming so that the metal shell 20 may be fixed readily and firmly to the connector housing 10.